i-Tree: Using simplified technology and partnerships to communicate science

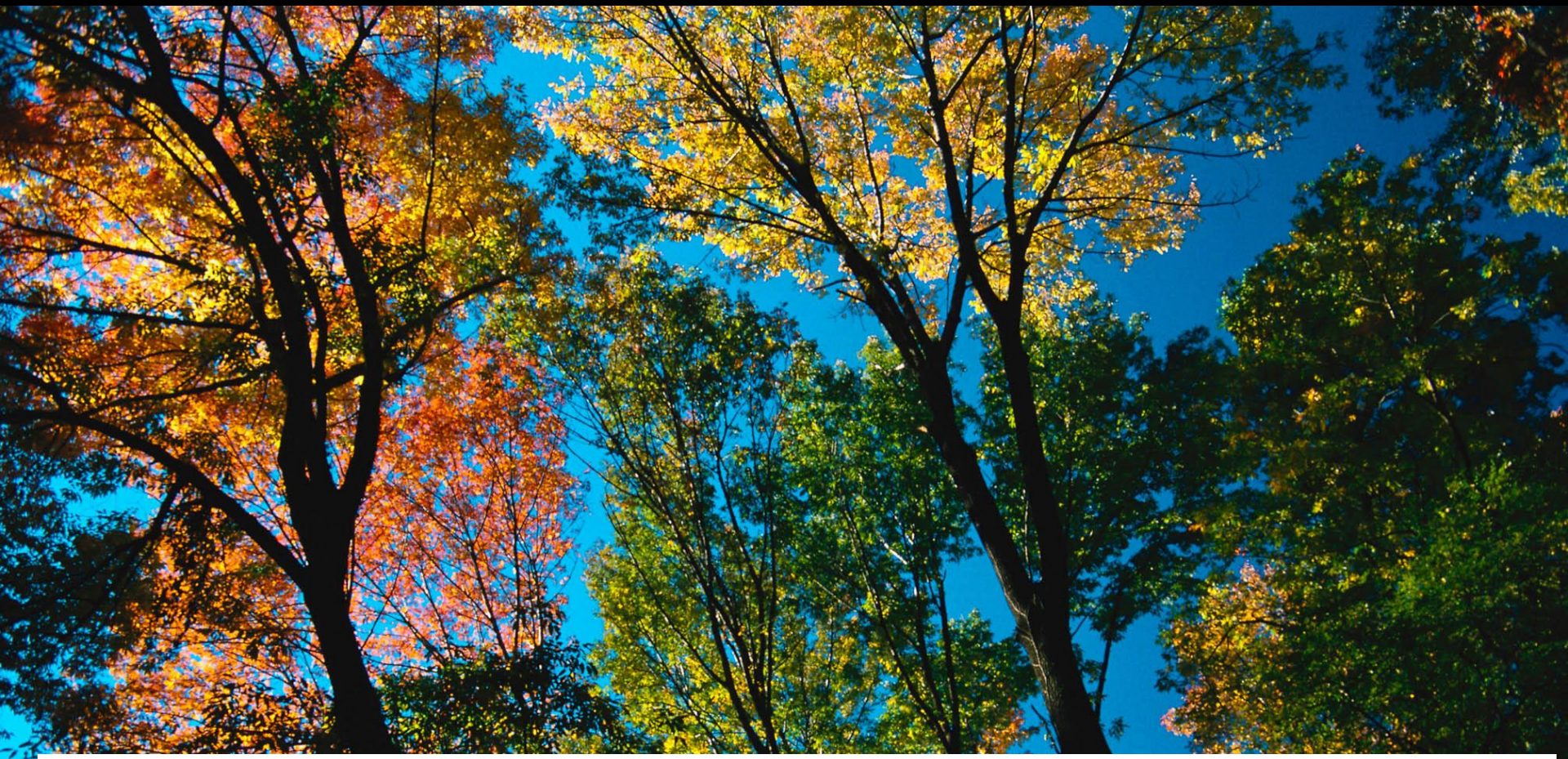
David J. Nowak
US Forest Service
Syracuse, NY

USDA

FOREST SERVICE
US
DEPARTMENT OF AGRICULTURE

What is i-Tree?

A series of FREE tools that quantify ecosystem services and values from trees and aid forest management



i-Tree is a Cooperative Initiative

History

```
%LET FILLADDR   = 'FILL';           /* Station address used when no pollution data available. */
%LET FILLCITY   = 'FILL FROM MEAN'; /* Cityname used when no pollution data available. */

/* CODE CHANGE  11/06/98  D.CRANE - Added the macro variables below. */

%LET NLAY     = 30;  /* The number of layers in canopy. */
%LET LAI_DIF1 = 0.1; /* The diff. in LAI for LAI's 0 to  1 in RCAN table. */
%LET LAI_DIF2 = 0.5; /* The diff. in LAI for LAI's 1 to  5 in RCAN table. */
%LET LAI_DIF3 = 1.0; /* The diff. in LAI for LAI's 5 to 13 in RCAN table. */

/* CONSTANTS - DO NOT CHANGE */

%LET PI       = 3.141592654;
%LET ZCONS    = 6.096; /* HT OF WEATHER STATION (M) */
%LET ZO       = 0.2;   /* ZO GRASS / AIRPORT - ROUGHNESS LENGTH */
%LET DISPL    = 0.6;   /* DISPLACEMENT HT GRASS - AIRPORT*/
%LET WINCONS  = (&ZCONS-&DISPL);
%LET K        = 0.41;  /* VON KARMAN'S CONSTANT */
%LET BETAM    = 4.7;   /* A DIMENSIONLESS CONSTANT IN THE DRAG FRICTION VELOCITY*/
%LET ACCGRAV  = 9.81;  /* ACCELERATION DUE TO GRAVITY M/SEC2*/
%LET PR       = 0.72;  /* PRANDL NUMBER */
%LET SCNO2    = 0.98;  /* SCHMIDT NO. FOR NO2 */
%LET SCSO2    = 1.15;  /* SCHMIDT NO. FOR SO2 */
%LET SCO3     = 1.00;  /* SCHMIDT NO. FOR O3 */
%LET SCCO     = 0.76;  /* SCHMIDT NO. FOR CO */
%LET HRS_DAY  = 24;    /* Hours per day */
%LET MNTHS_YR = 12;    /* Months per year */
%LET ATMOSPH  = 1.01325; /* 1 atmosphere in bars */
%LET M3_MOLE  = 0.0224;  /* m3 per mole. */
```

History


NOTE
Estimating Leaf Area and Leaf Biomass of Open-Grown Deciduous Urban Trees
David J. Nowak
ABSTRACT. Logarithmic regression equations were developed to predict leaf area and leaf biomass for open-grown deciduous urban trees based on stem diameter and crown parameters. Equations based on crown parameters produced more reliable estimates. The equations can be used to help quantify forest structure and functions, particularly in urbanizing and urban/suburban areas. For. Sci. 42(4):504–507.
Additional Key Words. Allometric equations, urban vegetation, urban ecology.
Materials and Methods
United States Department of Agriculture
Forest Service
Northeastern Forest Experiment Station
General Technical Report NE-186
Chicago's Urban Forest Ecosystem: Results of the Chicago Urban Forest Climate Project
E. Gregory McPherson
David J. Nowak
Rowan A. Rowntree
PERGAMON
Atmospheric Environment 34 (2000) 1601–1613
ATMOSPHERIC ENVIRONMENT
www.elsevier.com/locate/atmosenv
A modeling study of the impact of urban trees on ozone
David J. Nowak, Kevin L. Civerolo, S. Trivikrama Rao, Gopal Sistla, Christopher J. Luley, Daniel E. Crane
Abstract
1. Introduction
Brooklyn's Urban Forest
David J. Nowak
Daniel E. Crane
Jack C. Stevens
Myriam Ibarra
USDA United States Department of Agriculture
Forest Service
Northeastern Research Station
General Technical Report NE-290
Borough of Brooklyn

Problem: Limited Use and Impact

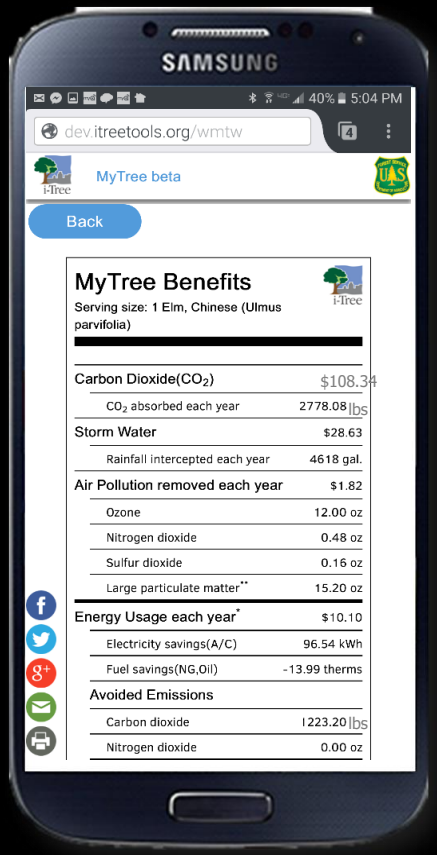
Problem: Limited Use and Impact

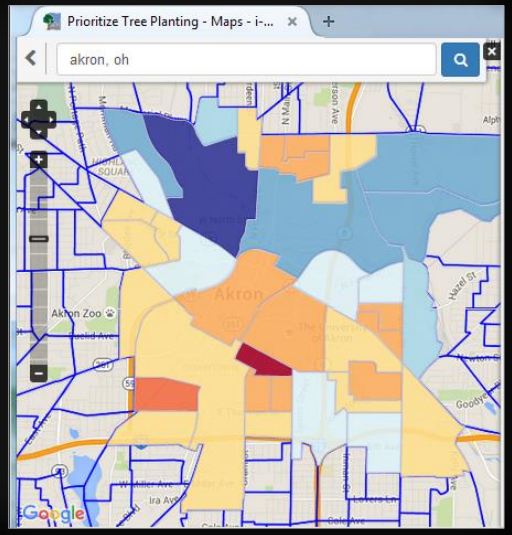
- Solution: “Tell to Sell”

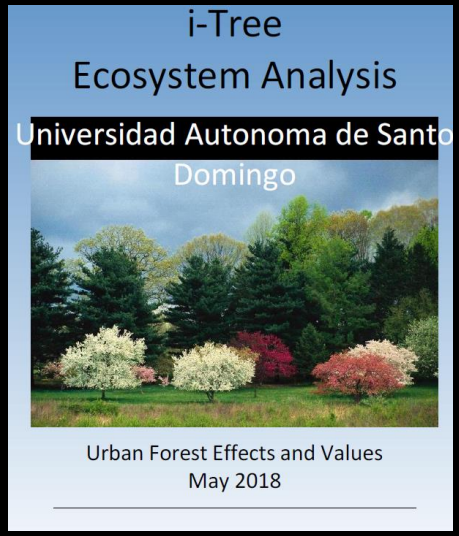
Problem: Limited Use and Impact

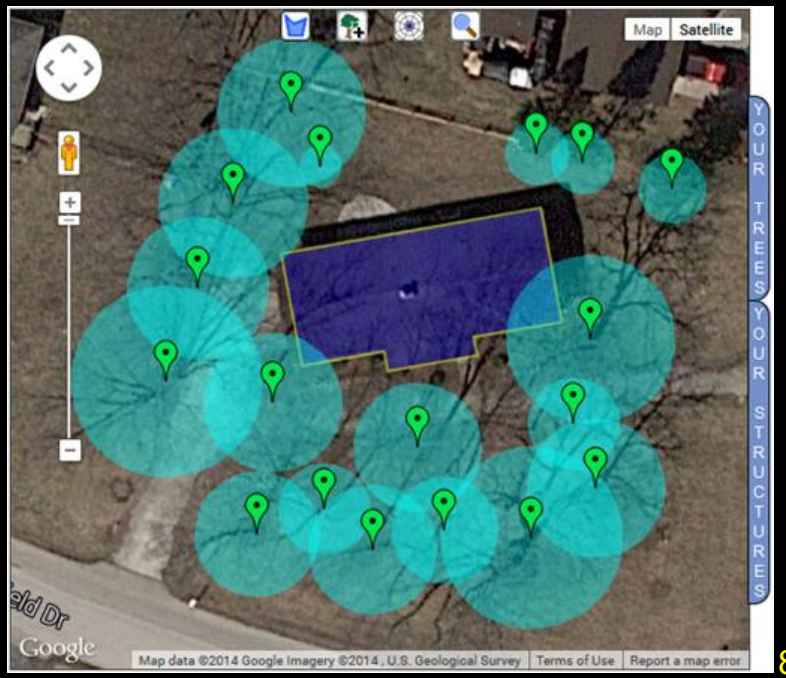
- Solution: “Tell to Sell”
  - KISS
    - Impacts: human health, environmental quality (why?)
    - Simple reports and technology

Simplification and Automation









Problem: Limited Use and Impact

- Solution: “Tell to Sell”
  - KISS
    - Impacts: human health, environmental quality (why?)
    - Simple reports and technology
  - Communicate w/in FS and externally
    - i-Tree: partnership of S&PF and R&D
    - Use communication staff – press releases

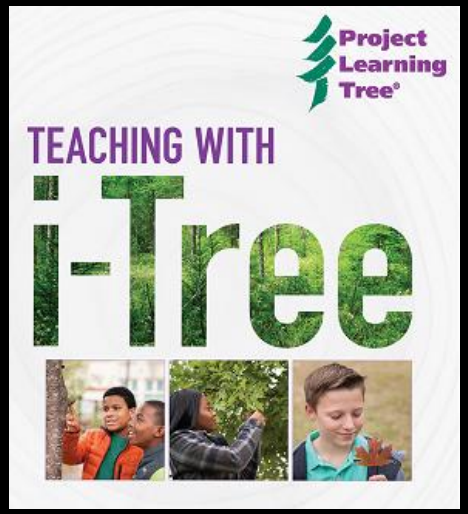
Problem: Limited Use and Impact

- Solution: “Tell to Sell”
  - KISS
    - Impacts: human health, environmental quality (why?)
    - Simple reports and technology
  - Communicate w/in FS and externally
    - i-Tree: partnership of S&PF and R&D
    - Use communication staff – press releases
  - Listen/ask - Engage stakeholders
    - Hold listening sessions

Problem: Limited Use and Impact

- Solution: “Tell to Sell”
  - KISS
    - Impacts: human health, environmental quality (why?)
    - Simple reports and technology
  - Communicate w/in FS and externally
    - i-Tree: partnership of S&PF and R&D
    - Use communication staff – press releases
  - Listen/ask - Engage stakeholders
    - Hold listening sessions
  - Develop Partners - share

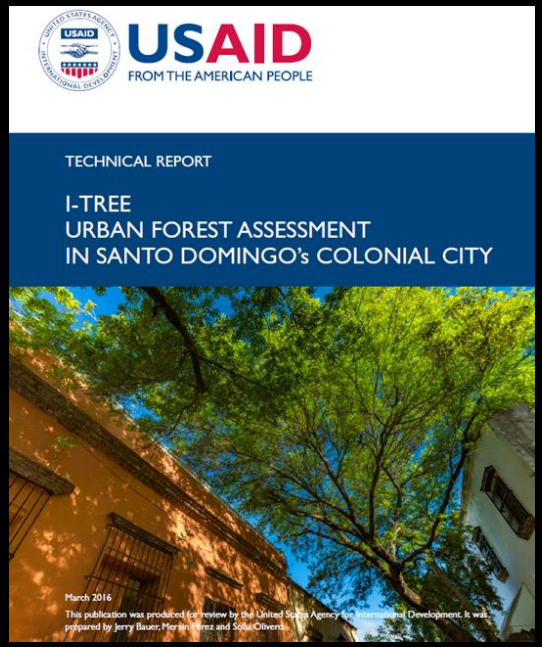
Partners

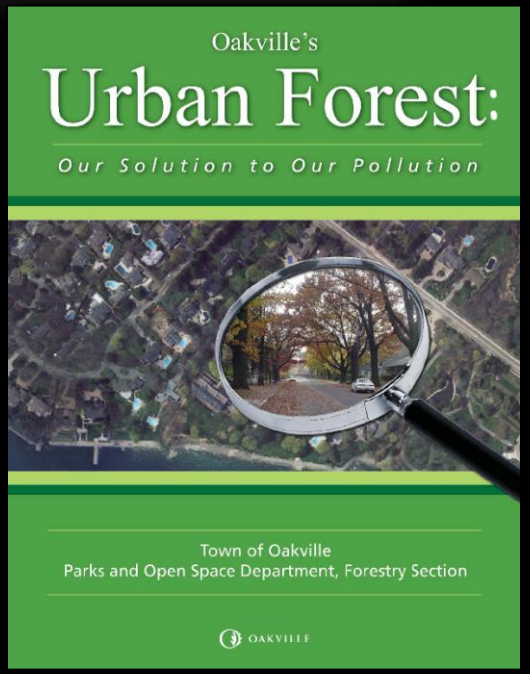


Problem: Limited Use and Impact

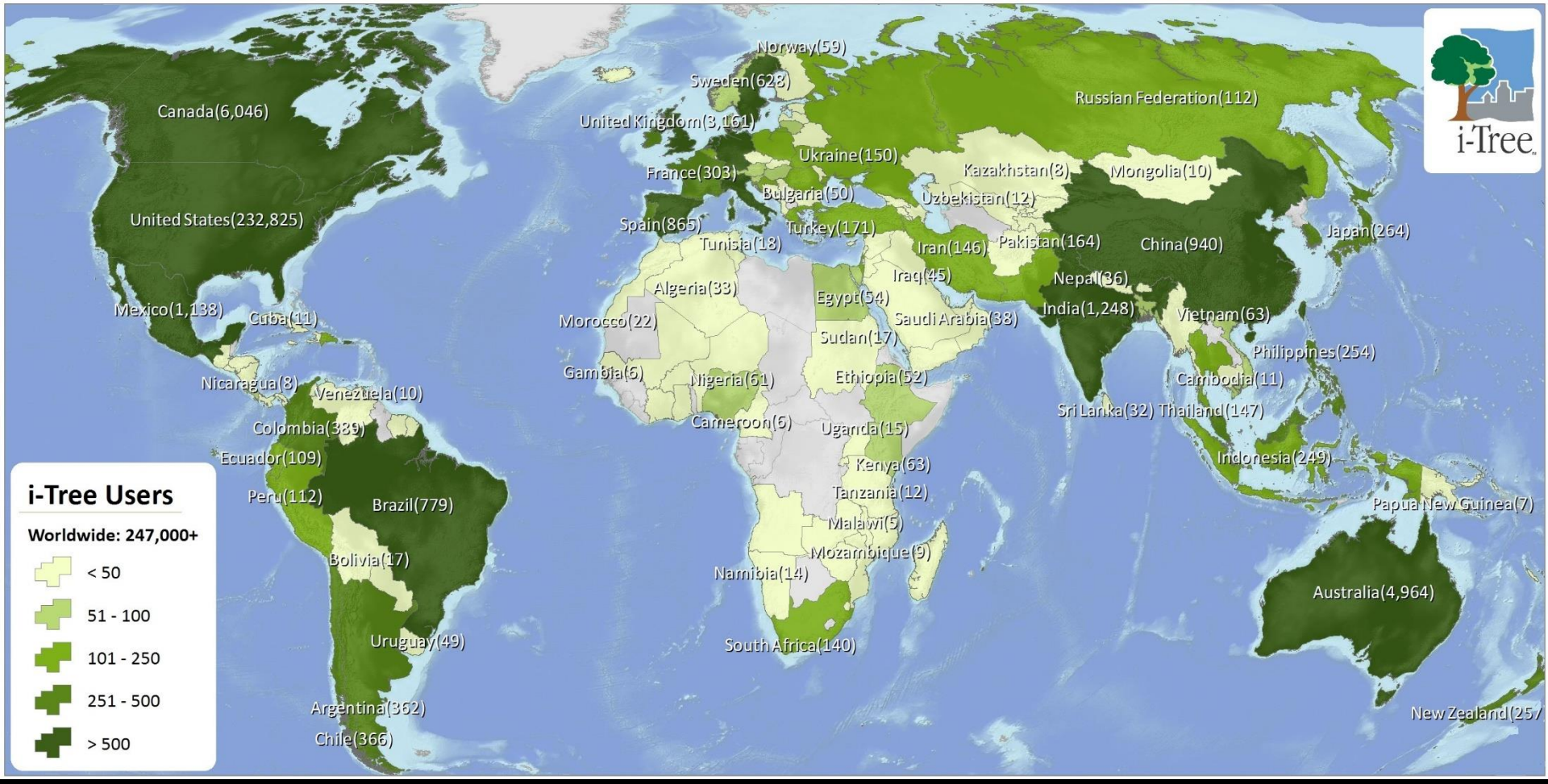
- Solution: “Tell to Sell”
  - KISS
    - Impacts: human health, environmental quality (why?)
    - Simple reports and technology
  - Communicate w/in FS and externally
    - i-Tree: partnership of S&PF and R&D
    - Use communication staff – press releases
  - Listen/ask - Engage stakeholders
    - Hold listening sessions
  - Develop Partners - share
  - Share / promote successes

Successes / Innovations

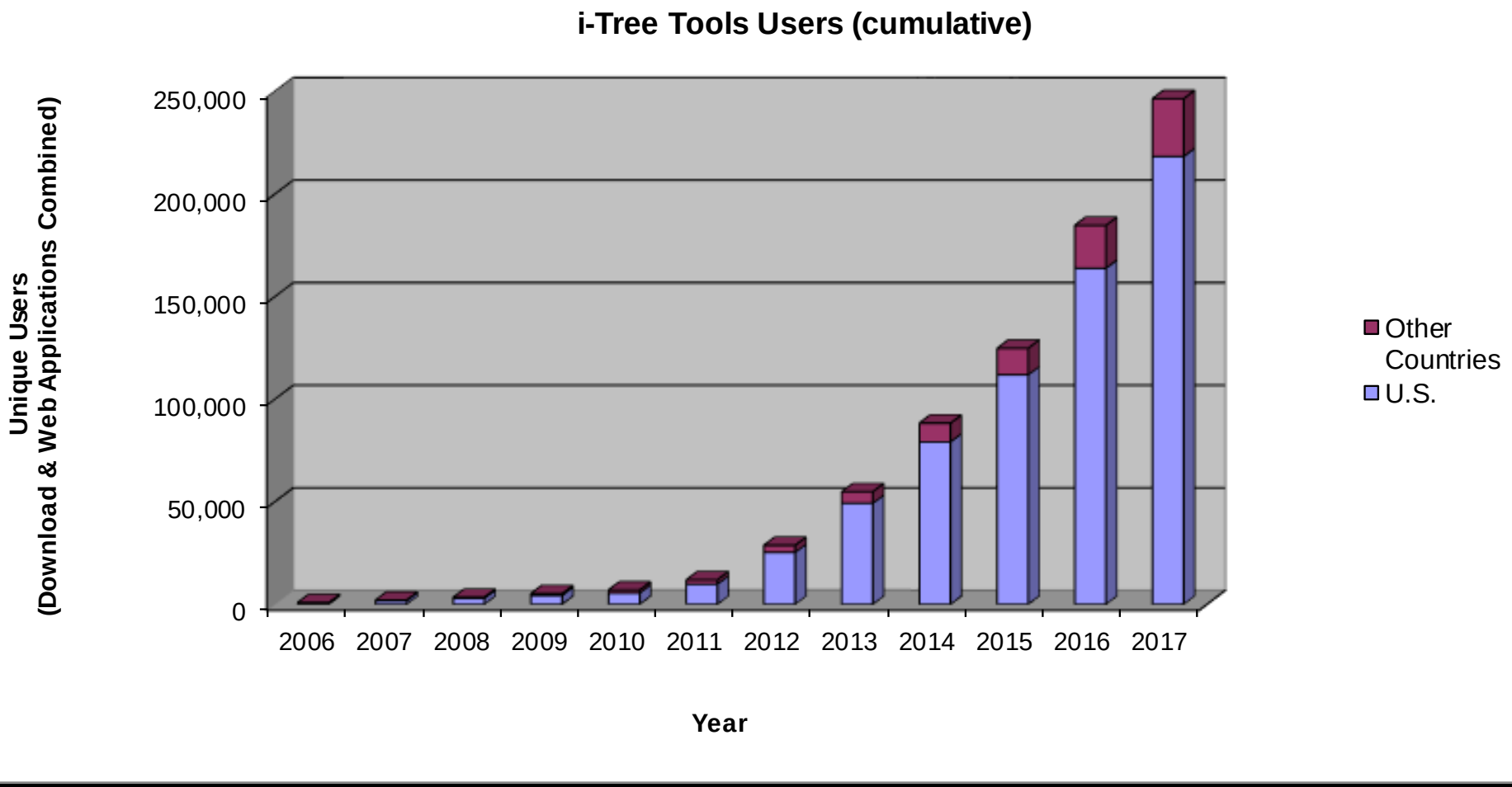




Global Usage



Growing Usage



Problem: Limited Use and Impact

- Solution: “Tell to Sell”
  - KISS
    - Impacts: human health, environmental quality (why?)
    - Simple reports and technology
  - Communicate w/in FS and externally
    - i-Tree: partnership of S&PF and R&D
    - Use communication staff – press releases
  - Listen/ask - Engage stakeholders
    - Hold listening sessions
  - Develop Partners - share
  - Share / promote successes
  - Be innovative

https://www.itreetools.org

Select Language ▼ Powered by Google Translate

Home | About | Search | Download i-Tree Desktop PC Applications | Create Account | Login

i-Tree
Tools for Assessing and Managing
Forests & Community Trees

i-Tree Tools | News | Resources | Support

What is i-Tree?

- **Free and easy to use tools**
- **Quantifies tree structure, threats, and benefits globally**
- **Built upon peer-reviewed, public-domain science**

*Visit the **About i-Tree** page for more details*

Which tool should I use?

For forests and many trees:

Eco

(desktop app)

Flagship tool that quantifies the structure of, threats to, and benefits and values provided by forest populations globally.

Landscape

(web app)

Search

Google Custom Search

Intro to i-Tree

Teaching with i-Tree

New curriculum available for grades 3-12!


Questions
dnowak@fs.fed.us